

Skill Based Treatment (SBT): On the Effectiveness and Social Validity of Scaling Effective Treatments

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Introduction

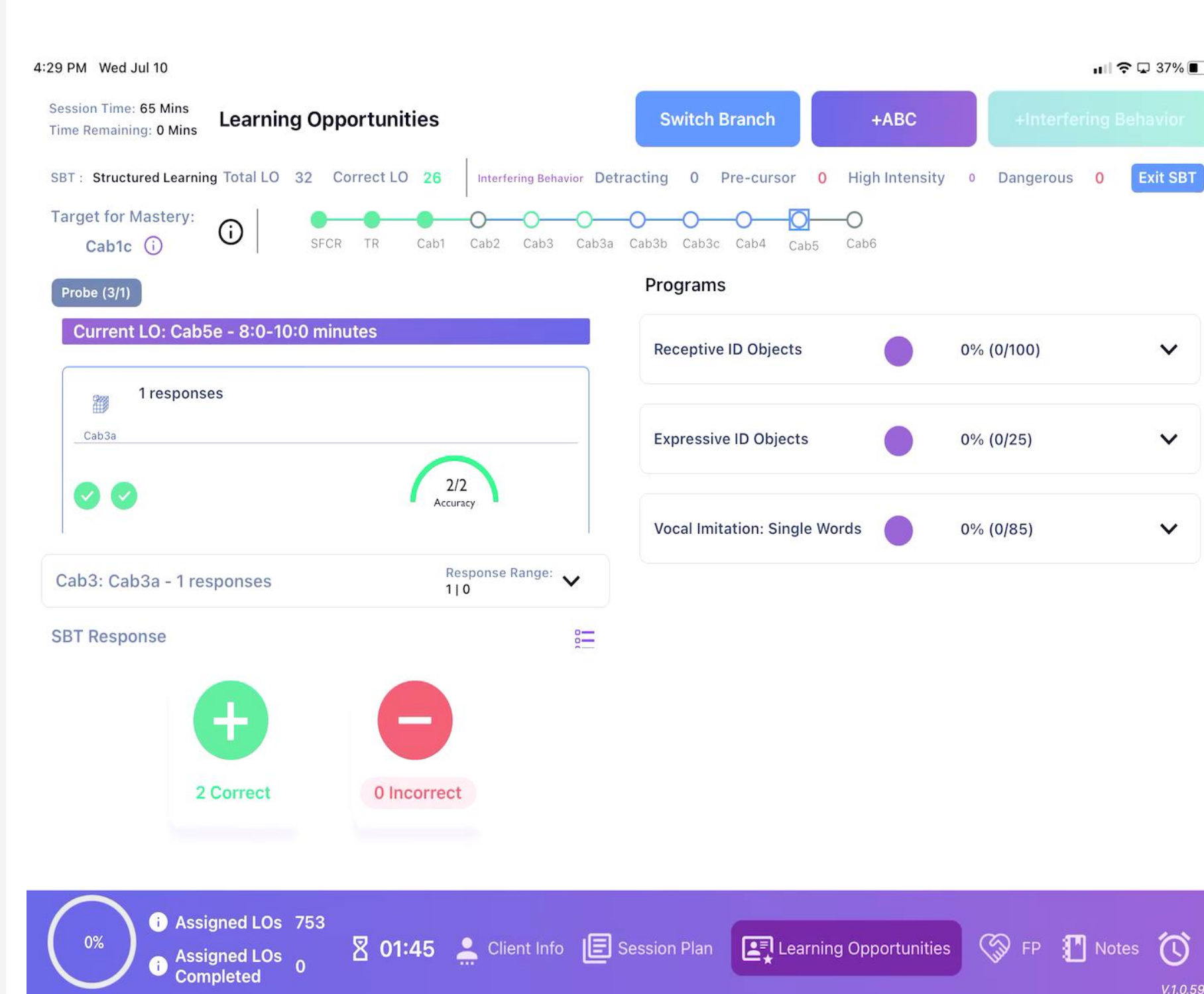
- Implementing best practices in ABA services may not be enough to create lasting change and widespread adoption of interventions by those who regularly interact with the individuals served. Effective treatment packages should also consider social validity and contextual fit to align with evidence-based practices (Slocum et al., 2014).
- Skill-Based Treatment (SBT) is an evidence-based intervention that has demonstrated significant social validity across implementers, clients, and families (Hanley et al., 2014).
- SBT targets core skills of communication, toleration, and cooperation through contingency-based reinforcement thinning, with safety as its top priority (Jessel et al., 2018).
- Limited opportunities exist that allow analysis of SBT implementation data on a large scale. This requires capable software, organizational support of the SBT process for appropriate clients, and unified training for clinicians and technicians on the process, app, and online software.
- This study will present and samples from the CareConnect (CC) software at Centria, analyses of SBT implementation data across hundreds of clients, as well as an analysis of social validity from clinicians and staff.

Methodology

- ### Participants
- The 386 participants (ages 2-21) are clients with privately funded ABA services at Centria, using CC for SBT. They have ASD diagnoses and histories of high-intensity or dangerous behaviors, and issues with reinforcers, transitions, and contextually appropriate behaviors. Clinicians and technicians were trained in CC SBT design and use.
- ### Settings
- Centria operates in 13 states, offering ABA services in home, center, and community settings.
- ### Measures:
- Trial-by-trial visual: Correct and incorrect responses for each step of a trial as well as interfering behavior occurrences.
 - Progress visual: Highest targeted step per day during SBT sessions.
 - Learning opportunities: Average number of trials required to master each step throughout the SBT process.
 - SBT Duration (Days): Average number of days in SBT required to master each step throughout the SBT process
- ### Procedure
- Centria launched CC, a proprietary software system to record and analyze SBT data, integrating client treatment plans
 - Tech training: 2-hour SBT overview training and 30-minute online training for SBT on CareConnect app version.
 - Clinician training: 14 or 20 week mentorship including asynchronous, synchronous training as well as live consultation. 2 hour PFA/SBT design meeting to ensure accurate branch development on CC. 30 minute online training for SBT on CC web version, and 30-minute online training for SBT on CC app version.
 - Clinicians design branches and assign SBT sessions dosage based on analyzing performance on CareConnect SBT graphs.
 - Software capable of integrating multiple branches and multiple technician users.
 - Technicians enter data on HRE, SBT targets, programs, and interfering behaviors during each session. SBT targets auto-progress or regress based on client responses, and learning opportunities are randomized among active targets. Technicians can skip targets if client behavior indicates it's inappropriate.
 - Clinicians schedule SBT with specific branches in CareConnect, which technicians can access and receive prompts to start.
 - Centria aggregates data from SBT sessions to inform decisions around software updates and mentorship.

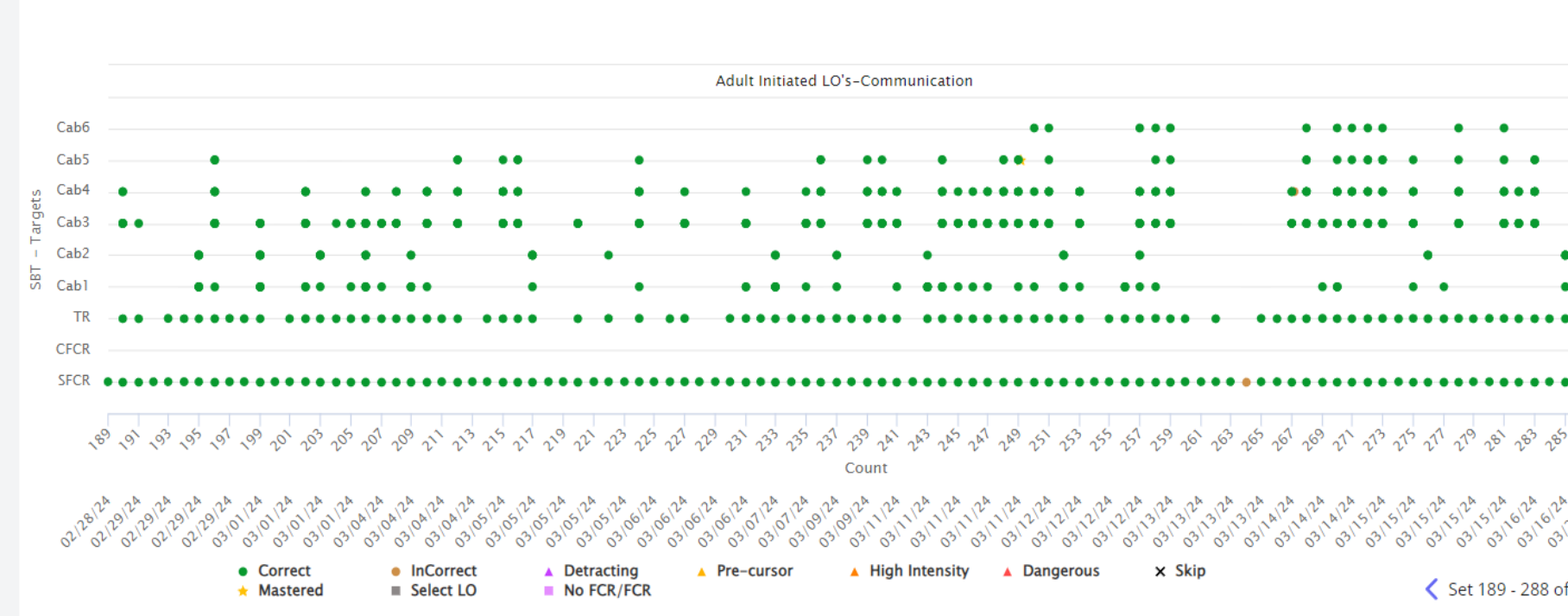
Results

Figure 1
SBT on CareConnect App



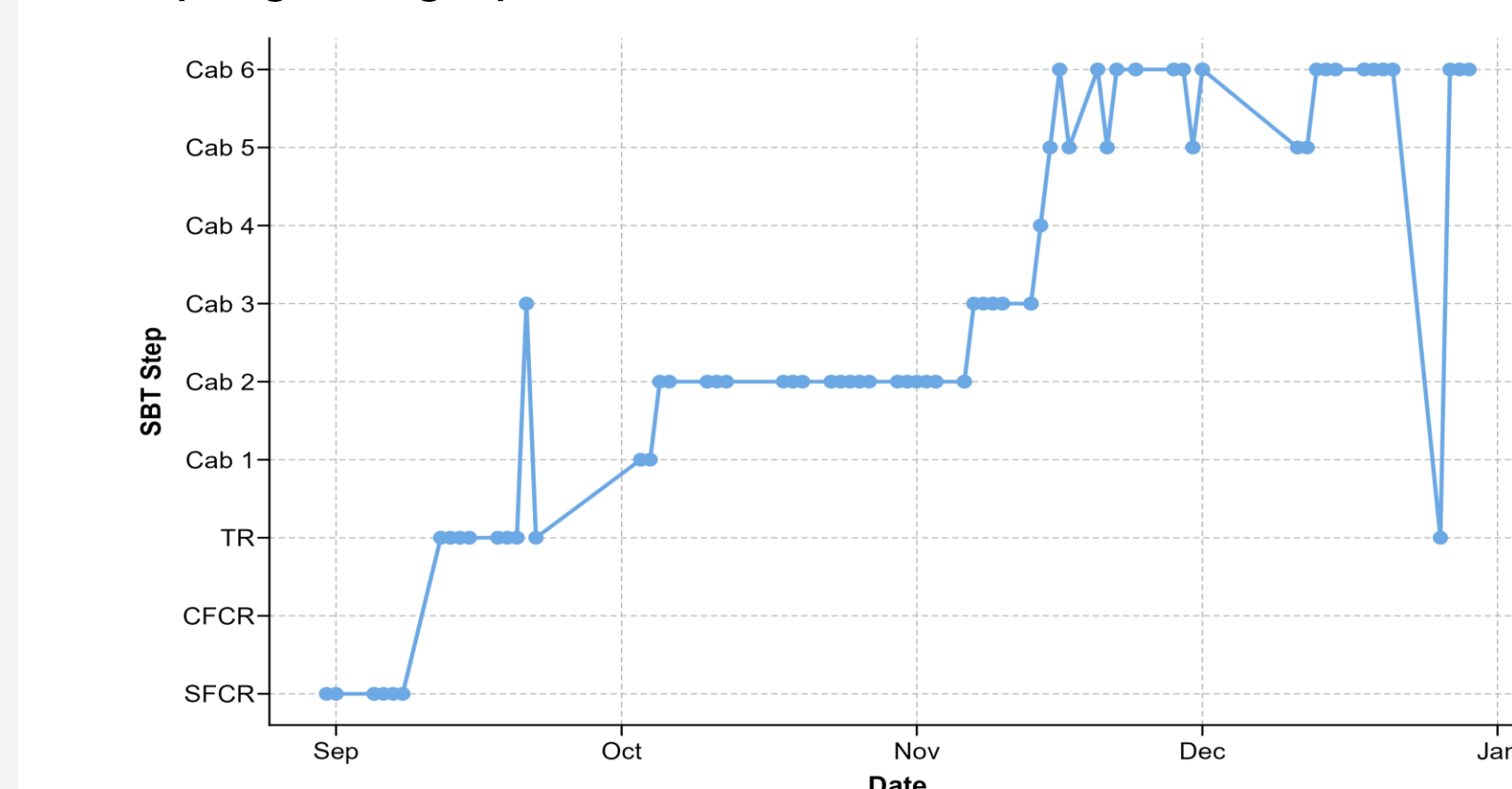
Note. User image of the app interface for technicians. Visuals for target step in the process, target for mastery, current Learning Opportunity label and data collection, interfering behavior occurrences, and program data collection are provided.

Figure 2
SBT trial-by-trial analysis



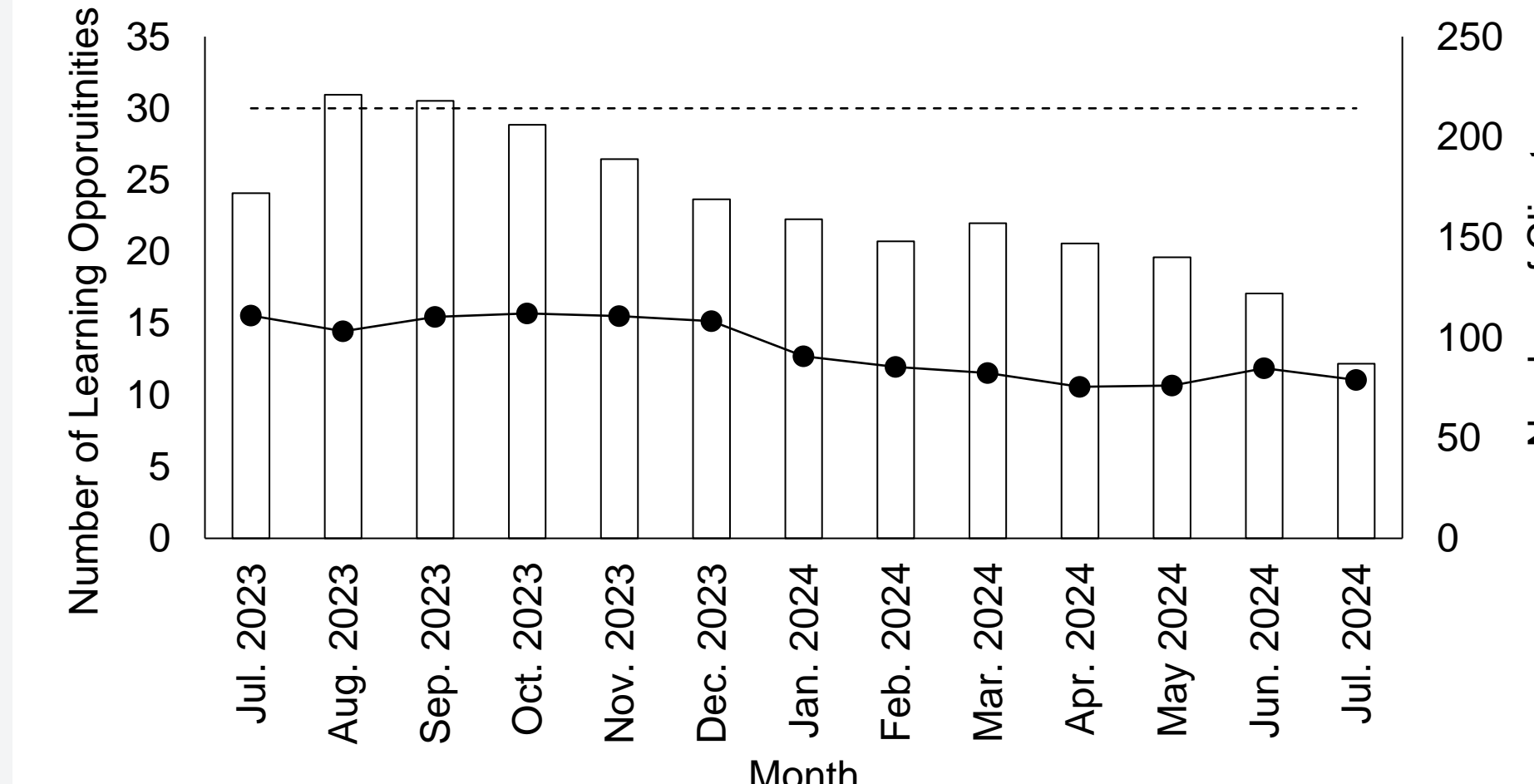
Note. Sample visual of trial-by-trial visual provided through the SBT for CC web software. Each learning opportunity is represented by a column, where data is presented on the correct or incorrect occurrence of each step within that trial. Data on the occurrence of interfering behavior is indicated at the step of the learning opportunity during which it occurred.

Figure 3
SBT progress graph



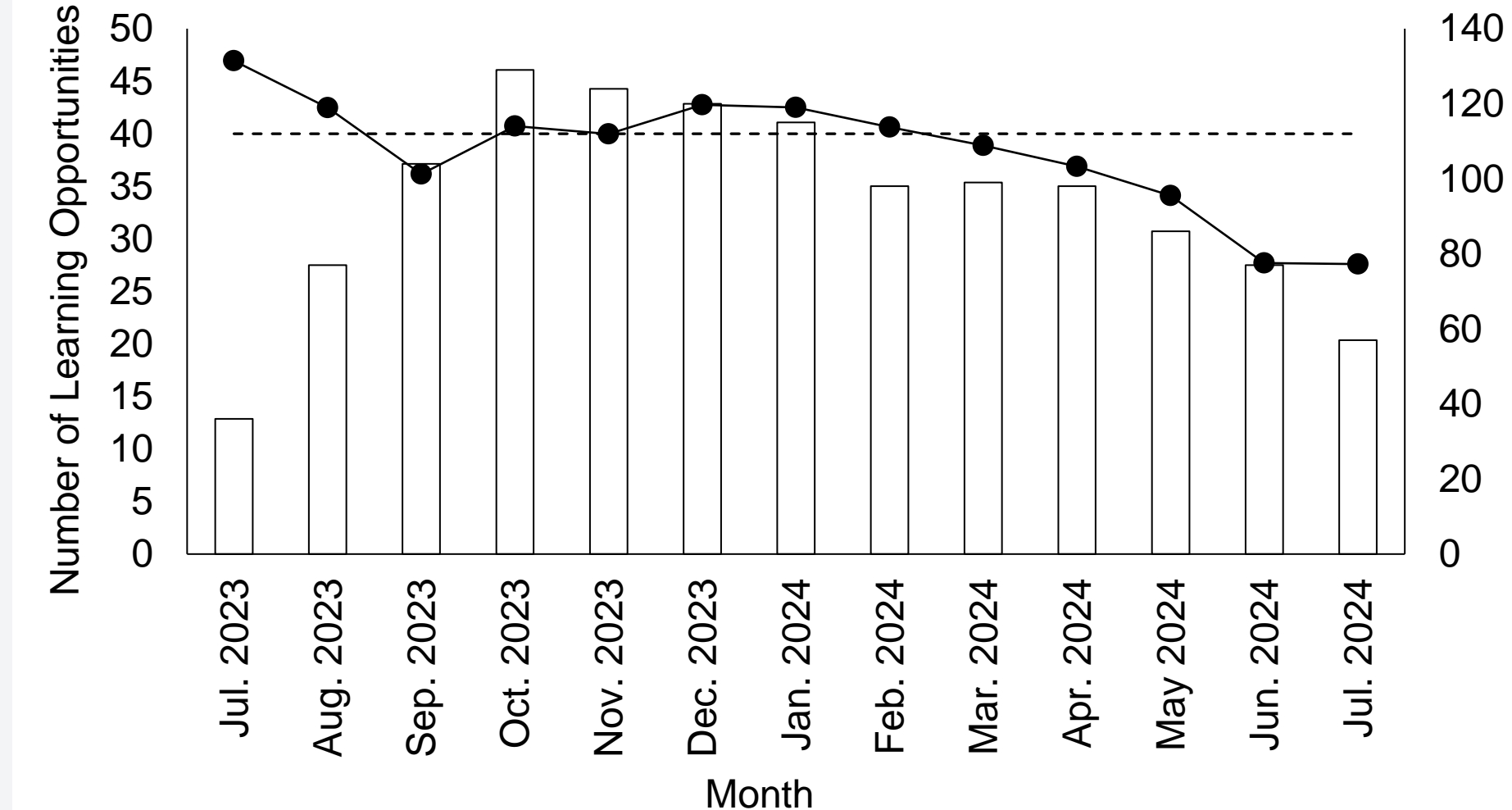
Note. Client progress displayed showing highest targeted step implemented in each session across 4 months.

Figure 4
Learning opportunities for the FCR and TR steps



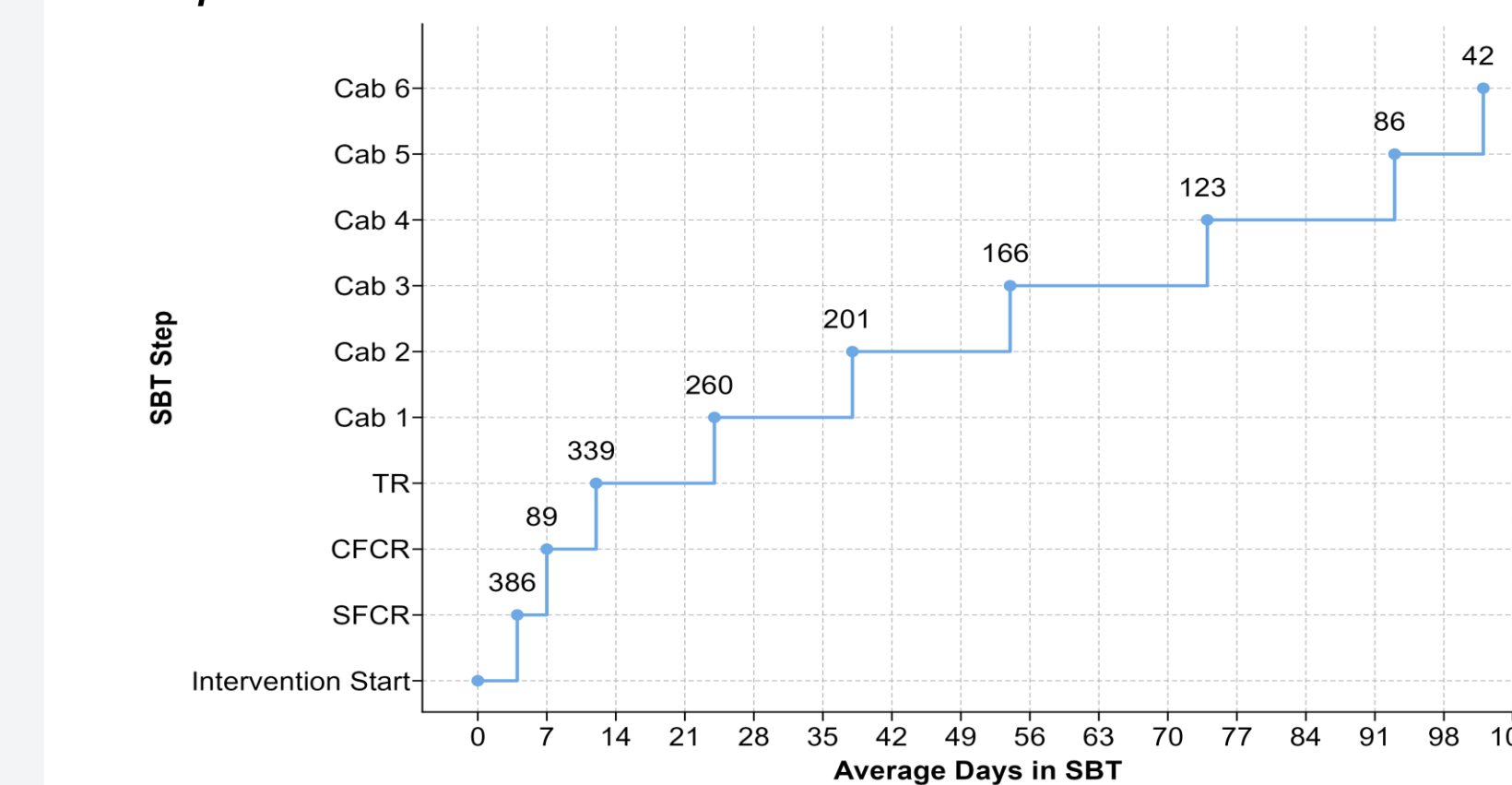
Note. Average number of learning opportunities required to master the FCR and TR steps. Number of clients each month provided.

Figure 5
Learning opportunities for the CAB3-6 steps



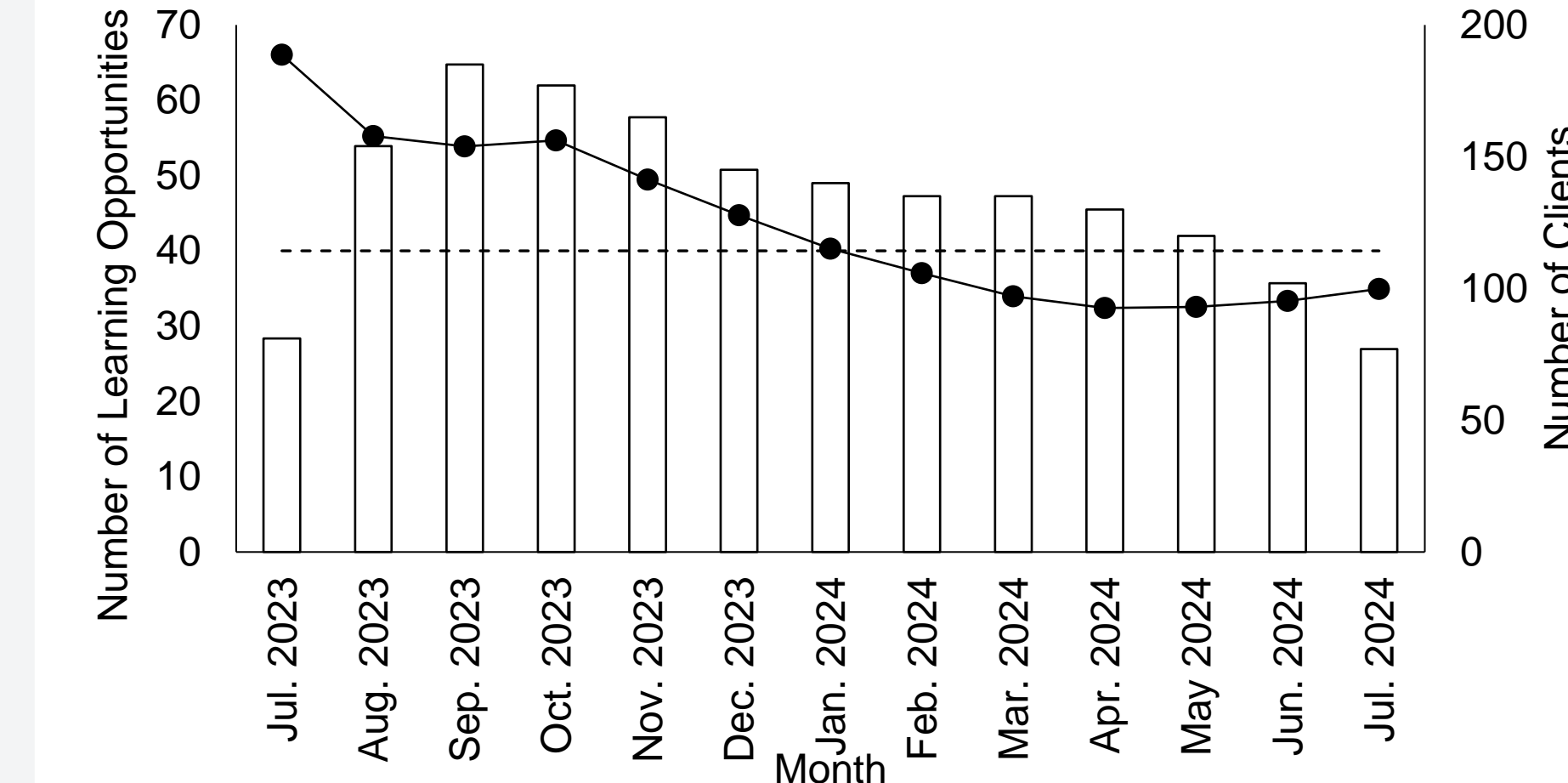
Note. Average number of learning opportunities required to master the CAB3-CAB6. Number of clients each month provided.

Figure 6
Components of STEAM



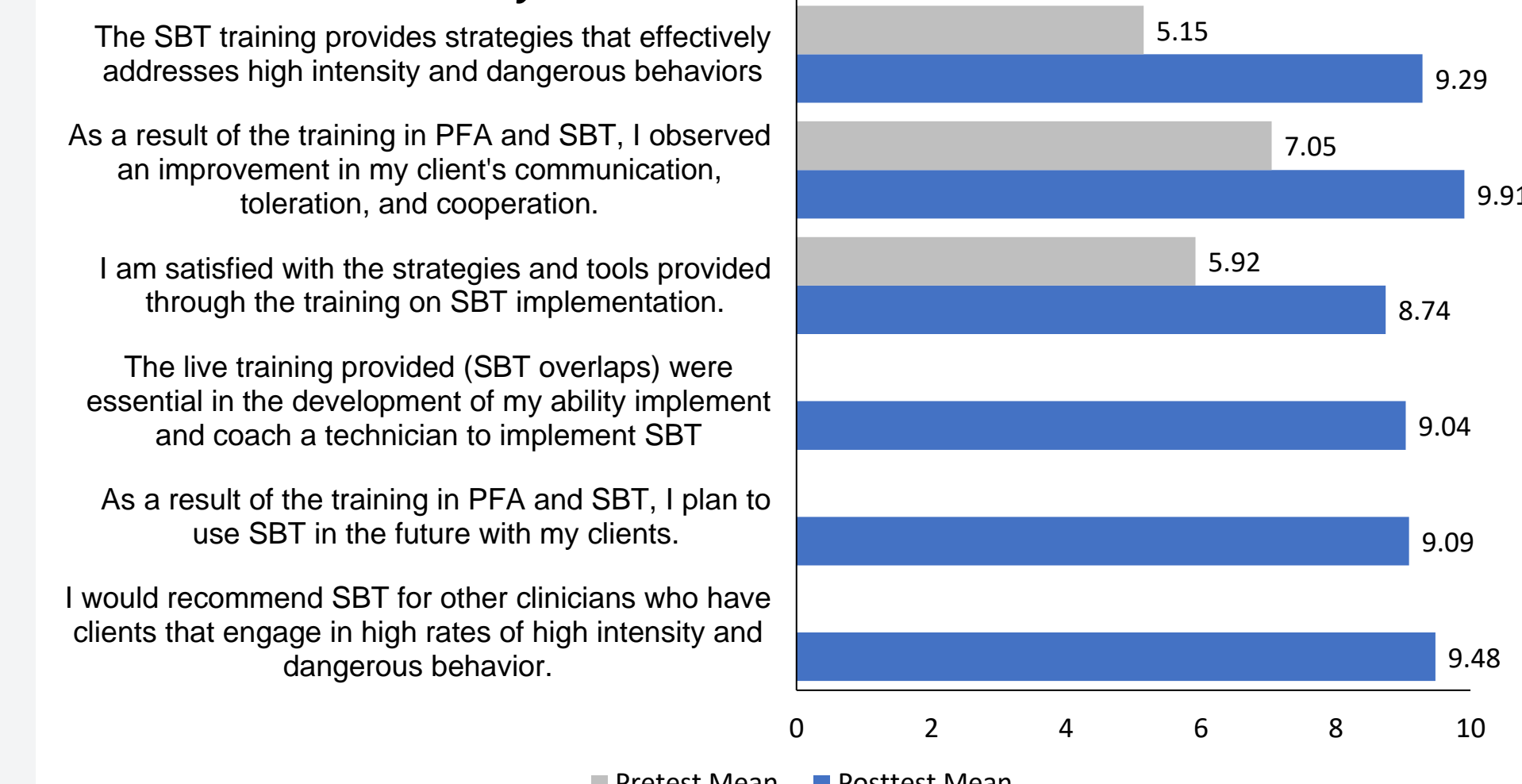
Note. Average number of days in SBT required to master each step of SBT. Number of clients participating at each step provided.

Figure 7
Learning opportunities for the CAB1 and CAB 2 steps



Note. Average number of learning opportunities required to master the CAB1 and CAB2 steps. Number of clients each month provided.

Figure 8
Clinician social validity scores



Note. Posttest and retrospective pretest social validity scores for participating clinicians (n=90)

Discussion

- Progress display shows highest sub-target in the SBT progression by branch and date, total learning opportunities, correct responses, and interfering behaviors, which allow clinicians to quickly assess trends towards mastery across multiple branches.
- Trial-by-trial displays step progress across branches, indicating when interfering behaviors occurred, their intensity, and any skipped targets
- Branch integration with treatment programs allows for streamlined data collection and accessible instructional notes.
- App for Technicians- Implementation Fidelity: Features randomization of trials, HRE scoring and guidance, locked access contingent on interfering behaviors, visual learning and mastery targets, program instructions, data entry within CABs, and instructional notes, facilitating easy implementation and data-based decisions.
- Integration of the data collection system into the clinical software allows the organization to monitor how many clients are receiving SBT at any given time, what steps are targeted for mastery, how long clients are trained on each step by days and number of learning opportunities to mastery at each step allowing for unique insight into programming.
- High scores across social validity measures related to the training and outcomes of SBT indicate successful adoption of SBT as a procedure that can be effectively applied to a subset of clients that aligns with the values of the organization.

Implications

- Continual analysis of training and support is required to address fidelity of SBT implementation and data collection.
- Dashboard summarizing organizational data does not currently integrate overall interfering behavior data for the clients currently in SBT. While individually this is possible through the software, additional measures are needed to see the more effects
- Monitoring learning opportunities and days to mastery at each SBT target allows for organizations to monitor the utilization of SBT as an intervention and the effectiveness of implementation based on modifications to training and updates to software.